

Amendments to the Drawings:

Tables 1–15 are being submitted as replacement drawings since they were not in the application file at the Patent Office. Tables 1-15 include the original numbers 108-118. The tables were submitted to the Patent office with the Specification, Claims, and Drawings on August 6, 2001, the filing date of the application. A copy of the return postcard accompanying the application indicating Tables 1–15 were included in the application mailed to the Patent Office is shown as Exhibit 1.

REMARKS

Reconsideration of the above-identified application is respectfully requested.

The remaining claims in the application, claims 1–20 and 42–61, have been rejected under 35 U.S.C. § 112, second paragraph, for being indefinite. The claims have been amended for clarification purposes. It is believed that the amended claims meet the requirements of 35 U.S.C. § 112, second paragraph.

Specifically, claims 1 and 42 have been rejected based on the usage of terms that are not understood by the Examiner. Certain terms are capitalized to reflect the fact that they are part of the Glossary of the original specification of the application.

In claim 1, step (b) refers to assembling a series of potential future cashflow outcomes. The Examiner is unsure as to whether the cashflow outcomes are related to the assets and liabilities of step (a), or whether the cashflows are unrelated or random.

The series of potential future cashflow outcomes is described in the original specification of the application on page 18, line 5 under the definition for PROBABILITY DISTRIBUTION, described as: “any table of potential future outcomes, comprised of two columns of numeric information, the first column holding probabilities, or chances of a cash value occurring, and the second column holding the cash values themselves ...” that together serve as cashflow outcomes for an UNDERLYING RISK VEHICLE.

Further, under the definition for UNDERLYING RISK VEHICLE as found in the original specification on p. 22, the potential outcomes for that risk vehicle are expressly described as being comprised of a set of probabilities associated with specific cashflow values.

An underlying risk vehicle is a universal definition for any group of one or more underwritten or traded assets or liabilities, whose future risk-neutral price can be collectively anticipated by applying the invention to the potential outcomes for that risk vehicle, comprised

of a set of probabilities and attached cash values, when also inputting a market price of risk for that risk vehicle.

Thus the cashflow outcomes are indeed related to, and directly reference, the group of assets and liabilities comprising the underlying risk vehicle, whether traded or underwritten, and these outcomes directly affect the future expected price of that underlying risk vehicle. As provided on Page 2, lines 7-8 of the specification, “For each [traded] instrument, a probability distribution assigns a probability to each potential future price, as a potential outcome.” And as provided on Page 3, lines 14-15 of the specification, “For each underwritten instrument, a probability distribution assigns a probability to each [potential] contract obligation, as an outcome.”

How is a probability distribution that is suitable to the underlying risk vehicle selected? As described, historical records of past prices or economic experiences for the underlying risk vehicle provide ample historical data to which probability distributions can be closely fitted. Also, computer-generated data can be used to create alternative probability distributions that are deemed appropriate to the anticipated future prices or economic experiences for the underlying risk vehicle.

The definition of PROBABILITY DISTRIBUTION on page 18, line 10 of the original specification states that “outcome probabilities and cash values can be selected from historically-known or computer-generated prices.” The respective definitions of P-MEASURE and Q-MEASURE in the original specification on pages 17 and 18 respectively describe how “objective” or “subjective” probability weights alongside the attached cash values for the future price of an underlying risk vehicle can determine a probability distribution that can be

appropriately used by a trader or underwriter using the invention to compute a risk-adjusted price for that underlying risk vehicle.

Steps (a) and (b) of claim 1 have been amended to clarify the invention.

The Examiner is concerned about step (d) of claims 1 and 42 concerning cumulating the probabilities. The Examiner is confused as to whether the described probabilities of step (d) relates back to the paired probabilities of step (b). Referring to the aforementioned definition of PROBABILITY DISTRIBUTION, on p. 18, ll. 9–12 of the specification, it is stated that the probability distribution can be selected as a “discreditized probability distribution, that is, a row-by-row set of outcome probabilities and cash values.” The original language in this step or element of the claim referred to a sorted series of outcomes where the last cumulative probability equals 1. This language implies “first” and “last” probabilities as part of the sorted, row-by-row of ascendant cash flow values as now recited in step (c) where the first ascendant cash flow value would be listed topmost, or in the first row, and the last ascendant cash flow value would be listed bottommost, or in the last row of the ascendant cash flow values. Step (d) has been amended to clarify this point. In addition, Tables 1–15 are now present in the file and provide more clarity to this step of the method.

The Examiner refers to step or element (e) of the claims and states the elements are unclear about their intended use. The Examiner has provided sample language that would be appropriate for step (e), so the step has been amended to include the Examiner’s recommended language.

In step (f), the Examiner is questioning the clarity of the lambda value. At p. 13, ll. 10–15, the lambda value is defined. At l. 11, it is stated that the LAMBDA VALUE is the same as

“the market price for risk of an underlying risk vehicle.” At p. 14, l. 3, the definition of MARKET PRICE OF RISK is stated as follows:

“A specific parameter value that ... for the very limited case of underlying risk vehicles whose historically-known traded market prices are lognormally distributed, the market price of risk equals the difference between the expected rate of return for the underlying risk vehicle, and the risk-free interest rate, whose remainder is then divided by the volatility of the return, where the volatility is calculated as the standard deviation of the return.”

This equation is known to those in the trading industry as the Sharpe Ratio.

At p. 43 of the specification, the introduction of a starter “market price of risk” that is set equal to the Sharpe Ratio for a traded underlying risk vehicle can be calculated by determining the average of a series of shorter-term period returns for that risk vehicle over a longer relative span of time, minus the risk free rate for that shorter-term period of time, all divided by the standard deviation of that same series of shorter-term period returns (Steps 206 of Example 2).

Please note, however, that this “lambda” value from Sharpe (Sharpe Lambda) is precise only if the series of shorter-term period returns for the underlying risk vehicle is assumed overall to be normally distributed. If such a series is *not* normally distributed, the “lambda” value from the invention of Wang (Wang Lambda) is far more precise. As found in Example 3 of the specification, the Sharpe Lambda and Wang Lambda can be very different. (The degree of non-normality of the actual series of periodic returns is partially expressed by the arithmetic difference of the “Sharpe Lambda” obtained in the previous paragraph, and the more precise “Wang Lambda” value obtained by iteration in dependent Claim 3.) But a “starter,” or provisional Lambda, calculated according to the method of the Sharpe Ratio as fully described in the previous paragraph, is sufficient for selection by an end-user in Step f of Claim 1 to compute and display an initial risk-adjusted price for the underlying risk vehicle, before further iterations

using the invention (as by using Goal Seek in Excel) are employed to get a more precise risk-adjusted price.

To clarify the Examiner's evaluation of the claims of the invention, a replication of the original set of Tables 1-15, as found in a modern Excel spreadsheet display, is provided in printed form, in Pages 1-11, as shown in Exhibit A. The replication clearly displays the numeric values for the results of each step of each independent claim, as provided in the examples of the original specification. The replication also includes an "alternative" view of those numeric values, in the form of the actual formulas and cell references that are used by the invention to produce the numeric values, as shown in Exhibit B. Finally, the replication also includes the means by which a Sharpe Ratio, as a "starter" lambda for the invention, can be calculated from the set of potential cashflow outcomes of the underlying risk vehicle in question. The Sharpe Ratio examples are prominently displayed below the replications of Tables 1 and 9.

In this replication of tables, certain non-material changes in numeric displays of precision (usually the third or second decimal of a value) are noted as a calculation rounding error caused by different versions of Excel. Also NORMSINV and NORMSDIST are used in the replication of tables as "shorthand substitutes" for the named NORMINV and NORMDIST functions having a 0 mean and 1 standard deviation found in the original specification.

Amendments have been made to claims 1 and 42 so that the claims read with more clarity. It is submitted that the claims meet the requirements of 35 U.S.C. § 112, second paragraph, and that the rejection of the claims should be withdrawn.

Claims 1-20 and 42-61 have been rejected under 35 U.S.C. § 101 because the Examiner believes there is no real-world concrete and tangible result associated with the calculation of

price. Therefore, the claimed invention is directed to nonstatutory subject matter. The Examiner has suggested language that would resolve this issue. The language could be included in a step for outputting the price or providing a report with the price, etc. as a concrete and tangible result to the steps as indicated. An output of a computer implemented method is the result of the inputs and through puts of the invention. The preamble to claim 1 has been amended to include the following:

“1. A computer-implemented method for computing and outputting an indicated price, with adjustment for risk, of anticipated contract obligations comprising the steps of:”

Claim 42 also has been amended in substantially the same way for the computer-readable medium. No new subject matter has been inserted into the claims.

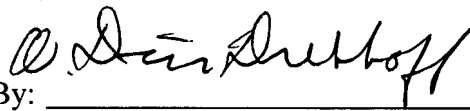
The amendments to claims 1 and 42 obviate the rejection under 35 U.S.C. § 101, and therefore, the rejection should be withdrawn.

The claims now meet the requirements of 35 U.S.C. An early Notice of Allowance of the above-identified application is respectfully requested.

Date: 8-15-07

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